

WHAT IS CLAIMED IS:

1. A power converting apparatus which is connected to an electric power system, said apparatus comprising:
  - a converting circuit, arranged to convert direct
  - 5 current power to alternating current power;
  - a transforming circuit, arranged to transform voltage outputted from said converting circuit;
  - a switch, arranged to make/break connection between said transforming circuit and the electric
  - 10 power system; and
  - a controller, arranged to control operation of said converting circuit and transforming circuit, and connection of said switch based on a line voltage of the electric power system and/or a connection state
  - 15 between said apparatus and the electric power system.
2. The apparatus according to claim 1, further comprising a detector, arranged to detect the line voltage, wherein said controller controls the output
- 20 voltage of said converting circuit in accordance with the detected line voltage.
3. The apparatus according to claim 1, further comprising a detector, arranged to detect the line
- 25 voltage, wherein said controller controls transformation ratio of said transforming circuit in accordance with the detected line voltage.

4. The apparatus according to claim 1, further comprising:

a detector, arranged to detect the line voltage;

5 and

plural connectors, each of which is arranged to connect between said switch and the electric power system,

wherein said controller activates one of said  
10 plural connectors based on the line voltage detected by said detector.

5. The apparatus according to claim 1, further comprising:

15 a detector, arranged to detect the line voltage;  
and

a booster circuit, arranged to boost voltage of the direct current power to be inputted to said converting circuit,

20 wherein said controller controls the voltage outputted by said booster circuit.

6. A power converting apparatus which is connected to an electric power system, said apparatus comprising:

25 a converting circuit, arranged to convert direct current power to alternating current power;

a transforming circuit, arranged to transform

voltage outputted from said converting circuit;

a switch, arranged to make/break connection between said transforming circuit and the electric power system; and

5 a controller, arranged to control operation of said converting circuit and/or transforming circuit, and control connection of said switch based on a type of connector which is used to connection between said apparatus and the electric power system.

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7. The apparatus according to claim 6, wherein said controller discriminates the type of connector, and controls voltage outputted from said converting circuit based on the discriminated type of connector.

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8. The apparatus according to claim 6, further comprising a booster circuit, arranged to boost voltage of the direct current power to be inputted to said converting circuit,

20 wherein said controller discriminates the type of connector, and controls voltage outputted from said booster circuit based on the discriminated type of connector.

25 9. The apparatus according to claim 6, wherein said controller discriminates the type of connector, and sets transformation ratio of said transforming circuit

based on the discriminated type of connector.

10. A power converting apparatus which is connected to an electric power system, said apparatus comprising:

5 a converting circuit, arranged to convert direct current power to alternating current power;

a switch, arranged to make/break connection between said converting circuit and the electric power system; and

10 a controller, arranged to control operation of said converting circuit and connection of switch based on a type of connector which is used to connection between said apparatus and the electric power system.

15 11. The apparatus according to claim 10, wherein said controller discriminates the type of connector, and controls voltage outputted from said converting circuit based on the discriminated type of connector.

20 12. The apparatus according to claim 10, further comprising a booster circuit, arranged to boost voltage of the direct current power to be inputted to said converting circuit,

wherein said controller discriminates the type of  
25 connector, and controls voltage outputted from said booster circuit based on the discriminated type of connector.

13. A power generating apparatus for generating electric power, comprising the power converting apparatus according to claim 1.

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14. The apparatus according to claim 13, further comprising a solar battery.

15. The apparatus according to claim 13, further  
10 comprising a charge/discharge controller for a storage battery.

16. A power generating apparatus for generating electric power, comprising the power converting  
15 apparatus according to claim 6.

17. The apparatus according to claim 16, further comprising a solar battery.

20 18. The apparatus according to claim 16, further comprising a charge/discharge controller for a storage battery.

19. A power generating apparatus for generating  
25 electric power, comprising the power converting apparatus according to claim 10.

20. The apparatus according to claim 19, further comprising a solar battery.

21. The apparatus according to claim 19, further  
5 comprising a charge/discharge controller for a storage battery.

22. A power converting apparatus for converting electric power comprising:

10 a booster circuit, arranged to boost voltage of direct current power inputted from a direct current power supply;

an inverter circuit, arranged to convert the direct current power, which is inputted from said  
15 booster circuit, to alternating current power;

an output port, arranged to output the alternating power supplied from said inverter circuit; and

a controller, arranged to control operation of  
20 said booster and inverter circuits based on a type of plug unit connected to said output port.

23. The apparatus according to claim 22, wherein said controller controls said booster and inverter  
25 circuits so that said apparatus outputs a voltage corresponding to the type of plug unit which is connected to said output port by a user.

24. The apparatus according to claim 23, wherein the plug unit has electrodes and at least one of projection which operates a switch arranged to said output ports.

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25. The apparatus according to claim 24, wherein said controller controls said booster and inverter circuits in accordance with the operation of the switch.

10 26. A power converting apparatus for converting electric power comprising:

a booster circuit, arranged to boost voltage of direct current power inputted from a direct current power supply;

15 an inverter circuit, arranged to convert the direct current power, which is inputted from said booster circuit, to alternating current power;

a first output port, arranged to output the alternating power supplied from said inverter circuit  
20 through a first switch;

a second output port, arranged to output the alternating power supplied from said inverter circuit through a second switch; and

a controller, arranged to control operation of  
25 said booster and inverter circuits,

wherein said controller makes the first switch and breaks the second switch when said apparatus is

operated and connected to an electric power system, and breaks the first switch and makes the second switch when said apparatus is operated and no connected to the electric power system, and

5           said controller controls the operation of said booster and inverter circuits based on a connection state of said first or second output port.

27.    The apparatus according to claim 26, wherein, if  
10   said apparatus is connected to the electric power system and a plug unit is connected to said second output port, said controller disconnects said apparatus from the electric power system.

15   28.    The apparatus according to claim 26, wherein said controller controls the operation of said booster and inverter circuits so that said apparatus outputs a voltage corresponding to a plug unit which is connected to said first or second output port by a user.

20   29.    The apparatus according to claim 28, wherein the plug unit has electrodes and at least one of projection which operates a third switch arranged to said first output port or a fourth switch arranged to said second  
25   output port.

30.    The apparatus according to claim 29, wherein



said controller controls the operation of said booster and inverter circuits in accordance with states of the third and fourth switches.

5 31. The apparatus according to claim 26, further comprising a fifth switch, a charge/discharge controller and a storage battery between the direct current power supply and said booster circuit.

10 32. A power generating apparatus for generating electric power, comprising a solar battery and the power converting apparatus according to claim 22.

33. A power generating system comprising a plurality  
15 of the power generating apparatuses according to claim 32.

34. A power generating apparatus for generating electric power, comprising a solar battery and the  
20 power converting apparatus according to claim 26.

35. A power generating system comprising a plurality of the power generating apparatuses according to claim  
34.

25 36. A control method of a power converting apparatus, which is connected to an electric power system, having

converting circuit arranged to convert direct current power to alternating current power, a transforming circuit arranged to transform voltage outputted from the converting circuit, and a switch arranged to  
5 make/break connection between the transforming circuit and the electric power system, comprising the steps of:

discriminating a line voltage of the electric power system and/or a connection state between the converting apparatus and the electric power system; and  
10 controlling operation of the converting circuit and transforming circuit, and connection of the switch based on the discriminated line voltage and/or connection state.

15 37. A control method of a power converting apparatus, which is connected to an electric power system, having a converting circuit arranged to convert direct current power to alternating current power, a transforming circuit arranged to transform voltage outputted from  
20 the converting circuit and a switch arranged to make/break connection between the transforming circuit and the electric power system, comprising the steps of:

discriminating a type of connector which is used to connection between the power converting apparatus  
25 and the electric power system; and  
controlling operation of the converting circuit and/or transforming circuit, and controlling connection

of the switch, based on the discriminated type of connector.

38. A controlling method of a power converting  
5 apparatus, which is connected to an electric power  
system, having a converting circuit arranged to convert  
direct current power to alternating current power and a  
switch arranged to make/break connection between the  
converting circuit and the electric power system,  
10 comprising the steps of:

discriminating a type of connector which is used  
to connection between the power converting apparatus  
and the electric power system; and

controlling operation of the converting circuit  
15 and connection of the switch based on discriminated  
type of connector.

39. A controlling method of a power converting  
apparatus for converting electric power having a  
20 booster circuit arranged to boost voltage of direct  
current power inputted from a direct current power  
supply, an inverter circuit arranged to the direct  
current power, which is inputted from the booster  
circuit, to alternating current power and an output  
25 port arranged to output the alternating power supplied  
from the inverter circuit, comprising the step of  
controlling operation of the booster and inverter

circuits based on a type of plug unit connected to the output port.

40. A controlling method of a power converting  
5 apparatus for converting electric power having a  
booster circuit arranged to boost voltage of direct  
current power inputted from a direct current power  
supply, an inverter circuit arranged to the direct  
current power, which is inputted from the booster  
10 circuit, to alternating current power, a first output  
port arranged to output the alternating power supplied  
from the inverter circuit through a first switch and a  
second output port, arranged to output the alternating  
power supplied from the inverter circuit through a  
15 second switch, comprising the steps of:
- discriminating an operation state of the power  
converting apparatus and a connection state between the  
first or second output port and an electric power  
system;
  - 20 making and/or breaking the first and second  
switches in accordance with the discriminated operation  
and connection states; and
  - controlling operation of the booster and inverter  
circuits in accordance with the discriminated operation  
25 and connection states.